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EXAMINER

DHINGRA, PAWANDEEP

ART UNIT

PAPER NUMBER

2625

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ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com



### **DETAILED ACTION**

- This action is responsive to the following communication: Amendment after non-final action filed on 12/09/2008.
- Claims 1-9 are now pending.

### ***Response to Arguments***

Applicant's arguments filed 12/09/2008 have been fully considered but they are not persuasive.

Applicant is arguing that is not clear which element of Numazu is being designated as the "transfer unit" of claim 1. Applicant further argues that movable arm 55 of Numazu is insufficient to teach the transfer unit as recited in claim 1.

In reply, examiner asserts that combination of movable arm 55 and cam 63 in figure 1A-2A of Numazu can be interpreted can be interpreted to sufficiently teach the transfer unit as claimed in claim 1.

Applicant admits that *"In Numazu, the cam 63 rotates around the support point 62, when switching between color printing mode and monochrome printing mode (col. 5, lines 27-39). Then, this rotation of the cam 63 moves the movable arm 55 upwardly or downwardly (col. 16, lines 52-67). This movement of the movable arm moves the conveyor belt 434 upwardly or downwardly (col. 15, lines 27-39, col. 16, lines 52-67)"*. However, argues that movable arm 55 of Numazu is insufficient to teach the transfer unit as recited in claim 1. Applicant further argues that *the cam 63 and the movable arm 55 are different parts of the apparatus of Numazu. Therefore, the movable arm 55 is not provided a cam 63 and a support point 62 and*

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Numazu fails to teach *"wherein the transfer unit has a rotary fulcrum positioned outside the belt..."*

In reply, examiner asserts that combination of elements – movable arm 55 and cam 63 in figure 1A-2A of Numazu can be interpreted as a transfer unit. Thus, transfer unit (combination of elements 55, 63) has a rotary fulcrum (cam 63) positioned outside the belt 43 and transfer unit can be rotated on the cam 63 in directions moving to and from the image carriers (Col. 12, lines 11-45, column 15, lines 27-column 16, line 67) as recited in claim 1.

Hence, combination of elements 55, 63 (figure 1A, 2A) of Numazu sufficiently teach the transfer unit as claimed in claim 1.

Applicant further argues that is not clear which elements of Numazu are being designated for the "transfer members" of claim 1.

In reply, examiner asserts that image transfer brushes 44a, 44b, 44c, and 44d correspond to the four photosensitive drums 41 a, 41 b, 41 c and 42, respectively (col. 10, lines 31-54) and are regarded as to teach the "transfer members" of claim 1.

Applicant further argues that these image transfer brushes of Numazu are insufficient to teach the transfer members as recited in claim 1 since Numazu fails to teach *"wherein a distance between any two of the transfer members stays constant during a rotation of the transfer unit"* as recited in claim 1.

In reply, examiner asserts that the claim requires distance between any two of the transfer members stays constant during a rotation of the transfer unit. Numazu teaches that *"The three image transfer brushes 44a, 44b and 44c...are integrally attached to*

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*the movable arm 55, and are vertically moved by the swing of the movable arm 55 relative to the conveyor belt 43"* (see column 12, lines 7-10), also see figs. 1A, 5A-B which shows that distance between any two of the image transfer brushes 44a, 44b and 44c stays constant, before and after rotation/movement of the movable arm. Hence, the distance between any two of the transfer members stays constant during a rotation of the transfer unit (assembly).

On the other hand, combination of elements 55, 63 (transfer unit) only encompasses the elements related to movable arm 55 and cam 63, i.e. elements 56, 57, 59, 61, 62 respectively. Thus, image transfer brush 44d is not even part of the transfer unit. Hence, the distance between all of the transfer members (44a, 44b and 44c, which are integral part of movable arm 55) stays constant during a rotation of the transfer unit.

Applicant further argues that *"Numazu fails to teach wherein the supporter has a rotary fulcrum positioned outside the belt and in the vicinity of an extension of the axis of a transfer member located at one end portion in a direction."* Applicant did not provide any argument to support that allegation.

In reply, examiner asserts that combination of Numazu and Futoshi successfully teaches the above argued limitation. See the discussion of claim 5 below.

### **Examiner Notes**

Examiner cites particular columns and line numbers in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations

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within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 6, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Numazu et al., US 5,765,082.

Re claim 1, Numazu discloses an image forming apparatus (see figure 1A) comprising: a plurality of image carriers (see 41a, 41b, etc., in figure 1A) arranged in a sheet transporting direction (direction H, see figure 1A); and a transfer unit (see explanation & discussion given in arguments above), which has transfer members (transfer brushes 44a-44d, see explanation & discussion given in arguments above) corresponding to the respective image carriers (see explanation & discussion given in arguments above), for transferring images carried on the respective image carriers (transfer brushes 44a-44d, col. 10, lines 45-49) (see also col. 10, line 31-col. 11, line 6) and a belt (belt 43, fig. 1) suspended from the transfer member (see figures 1A and 2A with corresponding text), wherein the transfer unit has a rotary fulcrum (see element

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cam 63, figures 1-2) positioned outside the belt and in the vicinity of an extension of the axis of a transfer member located on one end portion in the sheet transporting direction (see figures 1A and 2A with corresponding text) so as to be approximately parallel to the axis (see figures 1A and 2A with corresponding text), and can be rotated on the rotary fulcrum in directions of moving to and from the image carriers (see figures 1A, 2A with text; column 15, lines 27-column 16, line 67, and discussion in arguments above), and wherein a distance between any two of the transfer members stays constant during a rotation of the transfer unit (see figures 1A and 2A with corresponding text, and explanation & discussion given in arguments above).

Re claim 2, Numazu discloses the transfer members (i.e. rollers) are movable in directions of moving to and from the image carriers (see figures 1A and 2A with corresponding text).

Re claim 6, Numazu further discloses the rotary fulcrum is provided separately from any shaft and transfer members (see figures 1A and 2A with corresponding text).

Re claim 9, Numazu further discloses wherein the belt path remains the same as the transfer unit is rotated on the rotary fulcrum in directions moving to and from the image carriers (see figs 2A, 5A-B; column 6, line 54-column 7, line 56; column 11, lines 55-59; column 15, lines 27-column 17, line 67).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 5-7 are rejected under 35 U.S.C. 103 as being unpatentable over a Numazu et al., US 5,765,082 In view of Futoshi, JP 9-292753.

Re claim 3, Numazu fails to explicitly disclose the transfer unit includes a supporter for supporting the transfer members, and the supporter has the rotary fulcrum.

However, Futoshi teaches the transfer unit includes a supporter for supporting the transfer members, and the supporter has the rotary fulcrum (see paragraphs 4-11 in US 2004/0062577 and paragraphs 1-22 in Futoshi).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention to modify the image forming apparatus as disclosed by Numazu to include the image forming apparatus as taught by Futoshi for the benefit of having a proper image, which is formed by the easy configuration and tuning activity as taught by Futoshi at paragraph 22.

Re claim 5, Numazu further discloses a transfer unit (see explanation & discussion given in arguments above) comprising: a plurality of juxtaposed transfer



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members (see explanation & discussion given in arguments above); a belt suspended from the transfer member (see figures 1A and 2A with corresponding text), wherein a rotary fulcrum (see element cam 63, figures 1-2) positioned outside the belt and in the vicinity of an extension of the axis of a transfer member located at one end portion in a direction (see figures 1A and 2A with corresponding text) in which the transfer members are juxtaposed, so as to be approximately parallel to the axis (see figures 1A, 2A with text; column 15, lines 27-column 16, line 67, and discussion in arguments above), and wherein a distance between any two of the transfer members stays constant during a rotation of the transfer unit (see figures 1A and 2A with corresponding text, and explanation & discussion given in arguments above).

Numazu fails to further disclose a supporter for supporting the transfer members so as to be rotatable and movable in a radial direction, and wherein the supporter has a rotary fulcrum.

However, Futoshi teaches a supporter for supporting the transfer members so as to be rotatable and movable in a radial direction (see paragraphs 4-11 in US 2004/0062577 and paragraphs 1-22 in Futoshi), wherein the supporter has a rotary fulcrum (see paragraphs 4-11 in US 2004/0062577 and paragraphs 1-22 in Futoshi).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention to modify the image forming apparatus as disclosed by Numazu to include the image forming apparatus as taught by Futoshi for the benefit of having a

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proper image, which is formed by the easy configuration and tuning activity as taught by Futoshi at paragraph 22.

Re Claim 6, Futoshi also teaches the rotary fulcrum is provided separately from any shaft and transfer members (see paragraphs 4-11 in US 2004/0062577 and paragraphs 1-22 in Futoshi).

Re claim 7, Numazu fails to further disclose the rotary fulcrum is fixed to the supporter.

However, Futoshi further teaches the rotary fulcrum is fixed to the supporter (see paragraphs 4-11 in US 2004/0062577 and paragraphs 1-22 in Futoshi).

5. Claim 4 & 8 is rejected under 35 U.S.C. 103 as being unpatentable over Numazu et al., US 5,765,082 in view of well-known art.

Re claim 4, Numazu further discloses the transfer unit (see figure 3) is rotatable on the rotary fulcrum (elements 63, 62, figure 1A) so that a distance between a first transfer member and an image carrier corresponding to the first transfer member comes to a separated position when the transfer unit is separated from the image carriers (see figures 1A and 2A with text), wherein the first transfer member is adjacent to a second transfer member, the second transfer member being closer to the rotary fulcrum than the first transfer member (see figure 1A).

Numazu does not disclose expressly an image carrier corresponding to the first transfer member comes to between 2.5 mm and 4 mm when the transfer unit is separated from the image carriers, wherein the first transfer member is adjacent to a

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second transfer member, the second transfer member being closer to the rotary fulcrum than the first transfer member.

However, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to separate the transfer unit with distance between 2.5 mm and 4 mm from the image carriers as an obvious design choice for having the transfer unit separated from the image carriers at a safe distance as desired. One of ordinary skill in the art, would have expected applicant's invention to perform equally well with Numazu's image forming apparatus because Numazu's invention provides the same advantages and solves the same problems illustrated by applicant's invention such that at separated position, the transfer belt only contacts the desired photoconductive element, hence there would be no rubbing between other photoconductor drums and transfer members or an instance of a poor transfer would ever occur. Furthermore, Mizoguchi et al., US 6,470,166, see column 6, lines 20-27 teaches "In order to protect drum 5a from damage, the contact position of roller 13Y with belt 3 is shifted from the contact position of drum 5a with belt 3 by distance X. This displacement thus avoids contacting drum 5a with roller 13Y via belt 3" (note that again the goal is the same and the distance X can be between 2.5 mm and 4 mm or as desired by the user to serve the same purpose).

Re claim 8, Numazu does not disclose expressly wherein the transfer unit is rotatable between 2° and 3° on the rotary fulcrum.

However, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to rotate the transfer unit between 2° and 3° on the rotary fulcrum

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as an obvious design choice for having the transfer unit separated from the image carriers at a safe distance. One of ordinary skill in the art, would have expected applicant's invention to perform equally well with Numazu's image forming apparatus because Numazu's invention provides the same advantages and solves the same problems illustrated by applicant's invention such that at separated position, the transfer belt only contacts the desired photoconductive element, hence there would be no rubbing between other photoconductor drums and transfer members or an instance of a poor transfer would ever occur.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Contact Information***

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAWANDEEP S. DHINGRA whose telephone number is (571)270-1231. The examiner can normally be reached on M-F, 9:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (571) 272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. D./  
Examiner, Art Unit 2625

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